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ABSTRACT

The present study is a portion of a larger study dealing with early identification of children with potential learning or behavioral difficulties. Specifically, the purpose of this phase of the project was (1) to refine classroom observation techniques and procedures and (2) to collect classroom observation data on children in regular classes who were referred as potential classroom behavior problems. Children for the present study were 6.0--8.11 years old and were selected from cases referred to the UCLA Department of Psychiatry Child Outpatient Clinic. Results indicated behavioral differences between target children and their classroom peers. Subjects had lowered attending behavior and more frequent interaction with teachers, although not necessarily overt disruptive behavior. (SBT)

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CLASSROOM OBSERVATION OF POTENTIAL SPECIAL EDUCATION CHILDREN

by

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Foreward

The study reported here was part of a program of research in Special Education now in progress in the Graduate School of Education, University of California, Los Angeles, and the Department of Special Education, California State College at Los Angeles. Studies were carried out during the academic year 1972 under the auspices of the Special Education Research Project, supported by Contract #4730 between the California State Department of Education and the University of California, Los Angeles.

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Barbara K. Keogh, Ph. D.
Director
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September, 1971

CLASSROOM OBSERVATION OF POTENTIAL SPECIAL EDUCATION CHILDREN[1]

by

Steven R. Forness

The present report is an extension of work completed in the first phase (Forness 1971) of a project on classroom observation. In that phase, observation data was collected on 10 boys, first and second graders, in their public school classrooms. All had been referred to a child psychiatry outpatient clinic for evaluation of school problems and were observed for a period of six days according to a systematic format. Results indicated that these clinic subjects were significantly different from their peers in observed behavior during their reading groups but not significantly different during math instruction. In this, the second phase of the project, 14 additional boys were observed in the same fashion so that, with a total of 24 subjects, more extensive statistical analysis could be completed with considerably more confidence placed in the original findings.

The rationale for classroom observation concerns its potential as a source of data on problem children which 1) is relatively unbiased when compared with

[1]The author would like to acknowledge the valuable assistance of Ms. Karen Esveldt who supervised the observers and assisted in data analysis for the project and the generous assistance provided throughout the study by Ms. Judy Klusea and Mr. Angel Hernandez of the UCLA Mental Retardation Center Computing Resources group which is supported by the California Department of Mental Hygiene, the UCLA Health Sciences Computing Facility and NICHD Grants HD-04612, HD-00976 and HD-05315. Support from U.S. Office of Education Grant OEC-0-70-3803(603) was also used in the study.

teacher reports or rating scales, 2) highlights interactions among target children, their peers and teachers and 3) leads more directly to identification of problem areas and their possible remediation in the classroom setting. Classroom observation has furthermore begun to engender increased interest as a research technique (Herbert 1970), and recent studies have indicated that observational data appears to predict performance in other areas.

Lahaderne (1968), for example, found that classroom task attention correlated significantly with reading achievement and IQ in sixth grade boys. Cobb (1972) found even higher correlations in fourth graders. His observation categories were considerably more discrete; and by combining certain categories, he was able to generate multiple correlations of .66 and .50 with achievement in reading and .69 and .63 with math achievement. He found that "task attention" was a powerfully predictive category but quite unexpectedly found that "talking to peers about academic work" was another category which correlated quite highly, particularly with reading achievement. Children who spent a great deal of time talking to other children about their reading material seemed to also be those with higher achievement scores in reading. In a study with first graders, Cobb (1970) found multiple correlations with achievement which were slightly lower but still statistically significant. His first graders were observed to engage in appropriate behavior 86 percent of the time during reading instruction and 82 percent during math. Cobb also found significant differences in observed behavior as a function of sex and socioeconomic status, i.e., boys and lower SES children had lower levels of appropriate behavior.

In addition to cognitive variables, observational data appears also to predict functioning in affective areas. Lahaderne and Jackson (1970) found inverse

correlations between observed classroom attention of sixth graders and their responses on a social desirability questionnaire. Their findings indicated that girls who had unrealistic self images tended to withdraw from ongoing classroom activities. With boys, on the other hand, there seemed to be no relationship with withdrawal, but there was a negative relationship between attention and frequency of responses from the teacher for classroom discipline. Silberman (1969) observed teacher contacts with children for whom teachers had expressed feelings of attachment, concern, indifference or rejection. He found that teachers communicated certain feelings through their classroom behavior but that some feelings were more clearly communicated than others. Teachers who expressed attachment to a particular child did not necessarily make more frequent contact with that child and often went to great lengths to suppress any overt expression of attachment. Feelings of concern, however, did seem to generate more frequent contact even when this seemed to conflict with enforcing classroom rules.

Only two studies were reported in which classroom observation was used in a manner similar to that of the present study, i.e., to distinguish problem children from other children in the same classroom setting in terms of observable behavior. Nelson (1971) observed 20 conduct-disturbed children (10 boys and 10 girls) in grades three to six who had been identified by scores on a teacher behavior rating scale. He matched these with a control subject from their own classroom and observed each for 30 minutes usually during a single classroom period. Two observation categories were used, on-task behavior and deviant behavior. Nelson found that conduct-disturbed children displayed higher frequencies of deviant behavior and less on-task behavior than controls; normal children engaged in on-task

behavior approximately 75 percent of the time compared to 61 percent for conduct disturbed children.

There are drawbacks inherent in Nelson's approach, however. Observations limited to a single period do not take into account variations in behavior over time and across settings. Had the number of subjects been larger, this objection would not necessarily be sustained; but when one considers previous findings of sex differences in observable behavior (Cobb 1969), there were actually only 10 cases in each group which, as in the Forness (1971) study, render the findings only suggestive. The matching of experimental subjects with only one classroom control also suffers because of the small number of subjects. The present study, as will be indicated in the next section, partially controls for these problems by matching experimental subjects with a composite of the behaviors of all same-sex peers in the classroom group and by observations over a six-day period.

The second study (Gampel, Harrison and Budoff, 1972) was an observation of segregated and non-segregated EMR children whose observed behavior was compared with that of matched controls in the same classroom as the integrated EMR's. There were only eight subjects in each of the three groups, and there was considerable difference among all three groups in age and IQ, ranging from a mean age of 10 years 8 months for controls to nearly 13 years for special class EMR subjects and mean IQ's of 64, 77 and 128 for each of the three groups. Gampel et al did, however, use several discrete observation categories and observations took place over six days. There were no significant differences in attending behavior, distraction or in seven categories of disruptive behavior though significant differences were found in peer interaction suggesting that EMR children in both settings inter-

acted significantly less often with their peers.

The technique of direct observation in the Campel et al and the Nelson studies raises interesting possibilities relating to identifying problem children. Both studies, despite their limitations, did produce significant differences in observable behavior and, as Gampel et al (1972) suggested, a positive answer to the question "can we tell the difference by looking?" The present study attempts to answer that question with another population of children who are present in some number in regular classrooms and who may, in many cases, eventually find their way into special education.

A substantial number of children seen in our child outpatient clinic are referred because of school problems. Of the 600 child cases seen in our clinic during a recent year, for example, 325 had a presenting complaint of "school problems". In 111 of these cases, school problems were listed as a primary complaint. Many of these children are being considered for special class placement or are in danger of being excluded from school because of classroom behavior problems. They represent a large number of different school districts in a large metropolitan area and a wide range of socio-economic intelligence and achievement levels. In addition, most of the children are seen by a number of specialists from other professions whose diagnostic information can be eventually compared with factors of school performance. Such a population seemed an ideal one to explore a number of variables related to observable classroom behavior.

The purpose of this phase of the project was 1) to refine classroom observation techniques and procedures and 2) to collect classroom observation data on children in regular classes who were referred as potential classroom behavior problems

in order to discover and examine trends in their behavior which might ultimately point to methods of early identification in the classroom settings.

SAMPLING

Subjects for the present study were selected from cases referred to the UCLA Department of Psychiatry Child Outpatient Department (Child OPD) during two phases: Phase one in April and May 1971 (Forness 1971) and Phase two from October 1971 to May 1972. Children were referred from all over Southern California from a number of referral sources including parents, schools, community agencies, and private physicians. The primary mission of Child OPD is diagnosis, evaluation and referral -- a process which begins with an interview with the child's parents by the intake social worker, moves through examinations of the child by a team of specialists, a staff conference on diagnosis and disposition and eventual referral. A special education teacher is assigned on a part-time basis as a consultant on those cases in which school problems are involved and is assisted by two school psychology interns from UCLA. Educational consultation consists of achievement testing, observation of the child in various structured teaching situations and recommendations for educational placement. The entire child OPD evaluation takes place on a series of visits over a four-to-six week period.

Subjects were selected from the above population who met the following criteria: 1) age between 6-0 and 8-11 years, 2) male, 3) presenting complaint in the "school problem" category of the intake screening form which is filled out by the social worker in the initial parent interview, 4) current enrollment in a regular class in public school, 5) intelligence in the normal range. Computer

summaries of referrals were generated from the intake screening forms, and all cases meeting the above criteria during the period indicated were referred for study. Twenty-four subjects met the above criteria. Fourteen subjects were in the first grade, eight were second graders and two were in the third grade.

The control group were male peers in the subject's public school classroom who were in the same reading and math group as the subject. Only male peers were used since sex differences have been found to exist in observable classroom behavior (Cobb 1970).

PROCEDURE

Computer summaries of Child CPD referrals were periodically checked over the project period. As a subject was identified as meeting selection criteria, his staff physician was immediately contacted for permission to involve the subject in the study. The child's principal and his classroom teacher were contacted by phone and permission was requested for observations to be carried out in the child's classroom. Permission was obtained in all 24 cases.

Six trained observers, all graduate students in education, carried out the observations.[2] Each observer observed the same child in six separate classroom visits which took place over a two-week period. If a child was absent or if class trips or holidays intervened, the next available day was scheduled for observation. Under such conditions, approximately three observations were made per week. Observations occurred during the child's reading group and during the mathematics group.

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[2]The author would like to acknowledge the unswerving devotion to duty of Ms. Linda Mazer, Ms. Jan Kistler, Mr. Richard Morrison, Mr. Joe McNair, Ms. Nancy Rodriguez and Ms. Carole Rasmussen who covered nearly 4000 swerving miles of freeway traffic to gather data for this project, and Ms. Holly Spencer who handled logistical support.

The teacher was given the observer's name and the time when the observer would be arriving in her classroom. The observer arrived usually well in advance of the reading group period, introduced herself or himself to the teacher and took a seat in the back of the class or to the rear of the reading group area. The teacher had been instructed not to tell the subject that he was the target of the observations and that, if she felt it necessary, she could announce to the class that the observer was another teacher who would be visiting the class for a few days. A brief summary of the observation data was also mailed to the teacher if requested.

The teacher was asked at the end of the observations to indicate what her expectations were for intervention with the child. Those expectations were ranked on a five-point scale, the highest (5) being for a child who would remain as he was in her class to the lowest (1) being referred to a special class. Intermediate rankings were assigned to expectations that the child would require some modification in his program or extra help but would still remain in her classroom.

Data on the subject's age and grade level at the time of observation was obtained from the medical records in Child OPD together with the father's (or principal guardian's) occupation which was used to determine socio-economic status. The Warner, Mecker and Eells (1960) scale was used to convert occupation to one of seven SES categories ranging from professional (category 7) to seasonal or unemployed unskilled labor (category 1). Achievement testing was done during the course of the Child OPD evaluation. The principal test used was the Peabody Individual Achievement Test (Dunn and Markwardt 1970) although the California Achievement Test was used in a few cases. Both tests have been found to correlate quite highly with each other (Watson, P. UCLA Master's Thesis, in progress). Grade level scores were obtained in reading recognition and mathematics from the PIAT, and total reading and total math scores from the CAT.

Scores were then converted to five categories to control for grade level: 5 = achievement at or above grade level, 4 = achievement less than a semester below grade level, 3 = achievement more than a semester but less than a year below grade level, 2 = achievement more than a year but less than 1 1/2 years below grade level and 1 = achievement more than 1 1/2 years below grade level. No child obtained a score which was more than a semester above grade level or more than two years below. Intelligence testing was also completed during the evaluation and in most cases the instrument used was the Wechsler Intelligence Scale for Children (WISC). The Peabody Individual Intelligence Test (PPVT) was used in the remaining cases.

OBSERVATIONS

The method of observing was patterned after that developed by Cobb (1970) in which not only the child's behavior but the behavior of his classroom peers is observed and coded. Such a procedure allows a comparison of the frequency of the child's behavior with that of the average frequency for children in the same classroom.

Eight observation codes were used in gathering data: attend (AT), interact positive (IP), not attend (NA), improper locale (IL), teacher disrupt (TD), teacher negative (TN), peer disrupt (PD) and noisy (NY). Responses to the subject's behavior were also coded according to the following conditions: no response (0), positive teacher response (Teacher +), negative teacher response (Teacher -), positive peer response (Peer +) and negative peer response (Peer -). Detailed definitions of behavior codes, response conditions and a sample data collection sheet are presented in the appendix. Behaviors represent as nearly as possible

the entire topography of relevant, observable classroom behaviors (Cobb 1970); and final categories were arrived at after considerable experimentation in the first few weeks of the project before data collection began.

The observations were conducted accordingly. The observer was supplied with a stopwatch attached to a clipboard which held the data collection sheets. The stopwatch was marked with red tape at six-second intervals. During the first six-second interval the observer watched target subject, observed his behavior and the immediate response (if any) to the behavior by teacher or peers and put a tally mark opposite the behavior under the appropriate response condition. During the second six-second interval, the observer watched peer #1 and recorded his behavior in similar fashion. Generally, there was just sufficient time to spot one incident and record the appropriate response. During the next interval the observer looked once again at the target subject and recorded his behavior then went to peer #2, back to the target subject, then to peer #3, back to the target subject and so forth. When all male peers in the group had been observed, the observer repeated the cycle beginning again with peer #1 and continued going around in this fashion until the class period was over.

Observer Reliability. Observers were trained initially in an inpatient elementary classroom in the UCLA Department of Psychiatry over a two-week period. A third week of training took place in the public schools observing three practice subjects of approximately the same age and grade as the research subjects. The observers were trained by the investigator and his assistant, a master teacher in the inpatient school with extensive experience in classroom observation.

Reliability data was obtained both during the training phase and in the data collection phase. In the first two weeks of data collection, the master teacher accompanied each observer on the classroom visit and coded the subjects' and peers' behavior simultaneously but independently. Reliability was calculated by the percent method. Inter-observer reliabilities ranged from .91 to .97 in reading and .86 to .93 in math. Lower reliabilities for math were probably a function of the larger number of peers during that period. Reliability was taken again in October 1972 and reliabilities at that time ranged from .87 to .99 in reading and .87 to .93 in math.

STATISTICAL TREATMENT

Observation data was treated separately for reading and math. Behavior tallies were totaled at the end of each day and daily totals for the six days of observation were summed for the target subject and for his classroom peers. Since the amount of time devoted to instruction in the daily reading and math periods was not constant, the totals were converted to percentages. Thus, the percent of time a subject was engaging in a particular behavior over the six days could be compared with the average percent of time his classmates (male peers) were devoting to that behavior. Behaviors could also be compared under single conditions (0 vs. teacher +) or grouped for all response conditions. Finally, appropriate behaviors (AT and IP) could be summed and treated as one behavior category; and inappropriate behaviors (NA, IL, TD, PD and NY) could similarly be treated as one behavior.

Since very low frequencies occurred in some behavior categories and in some response conditions, it was decided to collapse certain of these for purposes of simplifying data analysis. This was done principally by combining the categories

of inappropriate locale (IL), noisy (NY) and not attend (NA) into one category labeled "not attend (NA)" which then became a general category roughly composed of those behaviors which were off-task but not directed at the teacher or a particular student. Two other categories, teacher disrupt (TD) and teacher negative (TN) were also combined into one category labeled "teacher disrupt (TD)." Since very low frequencies occurred in the two negative response conditions (teacher - and peer -), the negative and positive response conditions were combined. Thus the simplified version of the observation prepared for data analysis and presented in the next section contains five behavior categories (AT, IP, NA, TD, and PD) and three response conditions (no response, teacher response and peer response).

Subjects were systematically matched with their peers on only two variables; sex and setting. The data, however, was treated as comparisons between matched pairs since the number of observations made on all peers in an ability grouping equaled that made on the subject. The parceling of data was thus assumed to create a composite "peer" roughly matched in age and academic ability with the target subject, in that the subject and peers came from the same ability grouping in math and reading. The assumption was made particularly since the present study concerns the discrepancy between the subjects' behavior and the standard of behavior in the classroom in which he finds himself.

More extensive analyses of the data were performed in the present report which could not be done with the small number (N=10) of cases observed in phase one (Forness 1971). Two-tailed T-tests were performed to determine if significant differences existed between groups though it was not possible to control for factors such as IQ since these were only available for targets. Correlation

matrices were generated to determine the extent of relationships among observation data and between such data and variables such as achievement levels, IQ, SES, and group size. Lastly, statistics were generated to check for any effects of the observers' presence in the classroom.

RESULTS

Subject characteristics are presented in Table I. It can be seen that subjects are of normal intelligence, came from classrooms with a mean number of 24.5 children and were observed in instructional groups which contained a mean of approximately 4 to 5 male peers. Their achievement in reading and math is, on the average, at the 1.6 and 1.9 grade levels respectively. Since subjects were, however,

INSERT TABLE I ABOUT HERE

at different age and grade levels, their relative achievement compared to expected age norms was computed and is presented in Table II. Approximately two-fifths of the group seem to be in academic difficulty (more than a semester below expected achievement) and the remainder are within six months of expected achievement for the time of year in which they were observed.

INSERT TABLE II ABOUT HERE

Percent of total behaviors in each observation category are presented in Table III for reading group observations and in Table IV for math. It is obvious that attending to the academic task at hand (AT) is the activity in which both groups engage most often. Only a small percentage of the time do both groups engage in active

participation (IP) in the learning process with slightly more time given to non-attending (NA) behaviors.[3]

INSERT TABLE III ABOUT HERE

Disruptive behavior (TD and PD) are all but non-existent in both groups except for a small percentage of peer interaction. The only other feature which bears mention, at this point, is that most of the behaviors which occured (over 80 percent) appear to receive no overt response from anyone in the classroom within the immediate interval of observation.

INSERT TABLE IV ABOUT HERE

It should be noted that there was considerable variability in some of the reported percentages. For example in the attend (AT) category under the no response condition, target subjects had a range of 22 to 78 percent (s.d. 16.5) while peers had a range of 36 to 92 percent (s.d. 12.4). In math, the same values were 25 to 68 percent (s.d. 12.1) for target subjects and 41 to 77 percent (s.d. 9.5) for peers. In the interact positive (IP) category for target subjects in reading, there was a range across all conditions of 0 to 22 percent with standard deviations of 4.1 (no response), 6.1 (teacher response) and 2.7 (peer response). The same values for target subjects were not markedly different in math or for peers in either setting. In the two disruptive categories (TD and PD), no percentage was higher than eight percent in

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[3]As noted in the previous section, the NA category also includes the categories of inappropriate locale, IL, and noisy, NY; but a check of these categories revealed that they contributed less than five percent to the total indicating that category NA is primarily composed of what one would call daydreaming or dawdling behavior and not behaviors which are primarily disruptive.

any category for both groups with the exception in math of the Peer disrupt (PD) category under the peer response condition in which target subjects had a range of 0-22 (s.d. 4.9) and peers had a range of 0-15 (s.d. 4.2).

INSERT TABLE V ABOUT HERE

Differences between groups were significant only in a few categories as indicated in Tables III and IV. The percent of <u>total</u> appropriate behavior is presented in Table V and it can be seen that, although the mean differences appear to be relatively slight, they are highly significant statistically. Most of the variance would appear to be accounted for by differences in the attend (AT) category with complementary differences in the not attent (NA) category.

It would also seem that the target children receive significantly more attention from the teacher than their peers. As the data suggests, this extra attention is in a very appropriate context, i.e., academic interaction. A check of the first three days data of total teacher response to targets with the last three days (reading group only) revealed no significant differences ($T = 0.60$, $df=23$) which would seem to indicate that this is a valid difference and not an artifact of observer presence in the classroom. This replicates the findings of Masling and Stern (1969) who found no consistent pattern of correlations between data obtained on initial periods of classroom observation and that obtained over subsequent phases. Had a significant difference been found, one would have reason to suspect that the teacher was behaving differently towards the target child simply because the observer was present and that this behavior would have gradually attenuated during the final days of observation once she became used to the observer's presence. Again, it should be noted that the percentages are relatively small and some caution should be used in their interpretation.

INSERT TABLE VI ABOUT HERE

A correlation matrix was generated with several subject and observational variables selected primarily for their usefulness in explaining and clarifying certain major areas of interest. This matrix is presented in Table VI. It can be seen that only a handful of correlations are significant. Among them were significant positive correlation between math achievement and IQ and between math and reading achievement.[4] Teacher expectations for referral correlated .409 with SES, the direction of the relationship indicating that lower SES children were expected to need more severe interventions such as special class placement. Teacher expectations for referral also appeared to be negatively related to the level of peer attention in both reading and math indicating that the higher the level of peer attention in the classroom group, the less likely it seemed that the teacher felt able to cope with the child given the present resources of her classroom. Part of this may also have been a reflection of the overall finding that target subjects received more overall teacher response than peers perhaps because their behavior or learning problems required it. This would support the findings of Ebner (1967) and Walker (1969) who found that the deviant child often receives two to three times more teacher attention than normal children.

[4] Bear in mind that unless otherwise indicated, the data presented is for target subjects only, i.e., IQ, SES, achievement, teacher expectations.

None of the observable behavior correlated positively with achievement data. Interact positive (IP) during the reading group was in fact inversely related to reading achievement and, not surprisingly, to the size of the reading group. It should be noted, as indicated in Tables III and IV, that this behavior appears mainly under the teacher response condition and further breakdown of this category into three response conditions revealed that a significant correlation occurred, as expected, only under the teacher response condition. Observable behavior does not appear to be dependent on the subject being taught since the behaviors of both target subjects and peers also seem to be similar in both settings. These findings might be interpreted as a failure to replicate Cobb's (1969, 1970, 1972) findings of significant relationships between observable behavior and academic achievement. The failure to replicate, however, might possibly be a function of the type of subjects used in the present study. Whereas Cobb's subjects were primarily normal children in the regular grades, the present subjects were atypical children whose observable behavior was characterized by extreme variability. Moreover, Cobb's behavior categories were considerably more discrete than those entered into the present matrix and his predictive measure (multiple regression) enabled a combination of observable behaviors to be entered thus considerably enhancing their predictability and rendering comparisons with the present findings somewhat hazardous.

For both target subjects and peers, there were highly significant correlations in attending behavior between settings. High correlations were also found between levels of target attention and levels of peer attention within settings. Although there are significant differences in attending between groups, the level of the target subjects appears to be a function of the attending behavior of the other children in his classroom group. If the level of attention is high, there is a greater liklihood that

his attending behavior will also be high. This, of course, may also be a function of the teacher's ability to group similar children together for academic instruction. Note, as previously indicated, that some target children were attending only slightly more than 20 percent of the time and that some groups of peers were attending slightly less than forty percent. Even where interact positive (IP) behavior is added, it would appear that some groups of normal children must have been engaged in appropriate behavior only slightly more than half the time and this in small group instruction where one would expect relatively high levels of attending. A rather extensive factor analytic study of teacher ratings of children (Spivack, Swift and Prewitt 1971) indicated that the most deviant clusters of children were often characterized as "inattentive" in grades one through three and that those clusters often accounted for nearly a third of all children in the respective grades.

The most prominent finding in the present study, then, is that there are highly significant observable differences in classroom behavior between children indentified as having potential school learning or behavior problems and their so-called "normal" peers in the same classroom. These differences occur primarily in the subjects' lowered attending behavior and in their more frequent interaction with teachers and not necessarily with any overt disruptive behavior. As correlation findings suggest, these behaviors appear to relate in some cases to external factors.

IMPLICATIONS FOR PUBLIC SCHOOL

Even though the target children herein were observed in relatively small instructional groups in which one would expect them to be ability matched, there were still highly significant differences in observable behavior between these boys

and their "normal" classroom peers. Children with learning or behavior problems behave differently at least to the trained eye. To the untrained eye, however, these differences might not be apparent; to the harried teacher, these differences might go unrecognized. One could ask if the teacher was actually aware that the child was attending less often or if she was really conscious of giving the child considerably more attention than other children in the group. It is not difficult to suppose that, in her mind, one behavior is a consequence of the other: Concerned that the child is in difficulty, she gives him extra help and attention. It is also easy to suggest that his very behavior demands it. A great deal of the child's behavior nonetheless may go unnoticed. Indeed, as the data suggests, most of the child's inattentive behavior is not responded to, at least in the immediate interval.

Thus, it would seem both reasonable and productive to use the observation technique to identify children who are in academic or behavioral difficulty, particularly those whom the teacher may not have already noticed. The categories could obviously be simplified and the observation technique expanded if it were to be used as a screening device. Used in this fashion, all children in the room would be observed at alternate intervals during the same class period on successive days. In a half-hour period in a typical classroom, each child might be observed as many as ten intervals. Thus over a period of two or three weeks, a fairly substantial body of data could be collected on each child's behavior and the frequency of that behavior compared with the mean frequency for the whole class or even for all classes at a given grade level. Experience has indicated that, with simplified observation categories, relatively inexperienced personnel such as classroom aides aides can be taught to observe reliably in a relatively short time.

Children who are significantly below the mean on certain crucial behaviors such as attending could be singled out for further observation, testing or special help. Bear in mind that although observation data herein did not correlate with academic achievement, other studies have found such relationships; and some behaviors such as attending are considered basic to success in school tasks (Hewett 1968, Zeaman and House 1963). This is not to suggest a couse and effect relationship but merely to point out that a lack of attention should alert the teacher to search further for its causes: Lack of motivation, perceptual problems, poor grasp of basic skills, emotional problems or even distractions from classroom peers. In some cases, apparent lack of attention may even represent an outerdirectedness, i.e., relying more on adults or other children for cues as to what is correct or expected.

Although most teachers would claim to have a fairly accurate notion of the frequency of certain behaviors other than attending, precise, relative frequencies of these behaviors (e.g., disruptive behavior) can be useful in classroom management and motivation. More accurate decisions can be made on such questions as who is actually the "worst" of several offenders and needs to be dealt with on a first priority basis, whether the worst offender is actually receiving the most teacher response or whether disruption occurs according to a recognizable pattern that calls for certain interventions, i.e., change in seating arrangements, closer scrutiny at certain periods of the day, change in curriculum expectations.

Perhaps a more exciting use of direct observation is its potential in early identification. If problem children are indeed observably different by second or third grade, at what point do they begin to be so? Can one predict the occurrence of subsequent school problems through direct observation early in the year? After the first few days of school after children have settled into classroom routine, it

would seem feasible that differences which remain in observable behavior are valid differences and indicative of potential difficulty. The disruptive child might be readily recognized as problematic, but what of the child who quietly sits by not entirely certain what is expected on a task but not lost enought to be readily noticed by the teacher? His excessive glancing at other children for information or his possible retreat into daydreaming could easily go unnoticed in a class of 35 children. Systematic observation appears to be one method whereby such a child might be identified before he falls too far behind or before his frustration blossoms into a behavior problem. We are all too familiar with the classroom problem which is chronic by the time we have a chance to recognize it for what it is.

The obvious next step, one which is in fact next in this series of projects, is to observe kindergarten classes in an attempt to predict through direct observation early in the year those children who eventually become school learning or behavior problems. The salary of two or three observers used in this fashion appears to be a better investment than that of a highly trained school psychologist who is usually called upon at a point when he can do little more than confirm that a problem indeed exists.

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TABLE I

TARGET SUBJECT AND CLASSROOM CHARACTERISTICS (N=24)

	Mean	Range	S. D.
Age in years	7.2	6.0 to 8.9	.95
IQ	104.6	81 to 132	10.9
Reading achievement (grade level)	1.62	K.1 to 3.1	.66
Math achievement (grade level)	1.9	K.2 to 3.1	.73
Total number of children in child's classroom	24.5	17 to 33	5.5
Number of male peers in subject's reading group	4.07	2 to 9	1.46
Number of male peers in subject's math group	4.87	3 to 9	1.56

TABLE II

ACADEMIC ACHIEVEMENT OF TARGET SUBJECTS COMPARED TO EXPECTED ACHIEVEMENT (PIAT OR CAT NORMS) AT MONTH AND YEAR OF OBSERVATION

Achievement Level*	Reading (No. of Subjects)	Math (No. of Subjects)
5 At or above grade level	7	10
4 Less than one semester below grade level	7	5
3 More than one semester below but less than a year	3	7
2 More than a year below but less than 1 1/2 years	5	2
1 More than 1 1/2 years below	2	0
	24	24

*Note: no subject scored more than a semester above expected level for the time of year, nor did any score more than 1.9 years below.

TABLE III

PERCENT OF TOTAL BEHAVIORS OBSERVED IN READING GROUP UNDER VARIOUS RESPONSE CONDITIONS FOR TARGET SUBJECTS AND PEERS

	No Response		Teacher Response		Peer Response		Totals	
	Sub.	Peer	Sub.	Peer	Sub.	Peer	Sub.	Peer
Attend (AT)	53	66**	2	2			55	68
Interact Positive (IP)	4	4	10	7*	2	2	16	13
Not Attend (NA)	23	13**	1				24	13
Teacher Disrupt (TD)	1		1				2	
Peer Disrupt (PD)	1				3	3	4	3
Totals	82	83	14	9**	5	5	101	97

NOTE: Percentages have been rounded to next whole number thus totals reflect rounding error. For clarity, any percentages less than .5 percent were not shown. Significant differences are indicated by asterisk in the peer column: * for $p \leq .01$, ** for $p \leq .003$ (Two tailed T-test, df = 23)

TABLE IV

PERCENT OF TOTAL BEHAVIORS OBSERVED IN MATH GROUP UNDER VARIOUS RESPONSE CONDITIONS FOR TARGET SUBJECTS AND PEERS

	No Response		Teacher Response		Peer Response		Totals	
	Sub.	Peer	Sub.	Peer	Sub.	Peer	Sub.	Peer
Attend (AT)	49	62**	2	2			51	64
Interact Positive (IP)	4	4	7	4*	3	4	14	12
Not Attend (NA)	25	17**	1		1		27	17
Teacher Disrupt (TD)	1						1	
Peer Disrupt (PD)	1				5	6	6	6
Totals	80	83	10	6**	9	10	99	99

NOTE: Percentages have been rounded to next whole number thus totals reflect rounding error. For clarity, any percentages less than .5 percent were not shown. Significant differences are indicated by asterisk in the peer column: * for $p \leq .01$, ** for $p \leq .003$ (Two-tailed T-tests, df = 23)

TABLE V

PERCENT OF TOTAL APPROPRIATE BEHAVIOR
(ATTEND AND INTERACT POSITIVE)
OVER ALL CONDITIONS FOR BOTH GROUPS
IN BOTH SETTINGS

	Subjects	Peers	
Reading	71	81	$T = 3.88$ ($p \leq .001$)
Math	65	76	$T = 3.44$ ($p \leq .002$)

TABLE VI
CORRELATIONS BETWEEN SELECTED SUBJECT, PEER AND OBSERVATIONAL VARIABLES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. IQ															
2. Father's SES	.250														
3. Class size	.058	.081													
4. Read achieve	.293	.168	.139												
5. Math achieve	.583	.434	-.027	.571											
6. Teacher expect	.249	.409	-.025	.267	.370										
7. Peers read	.051	.099	.171	-.108	-.075	-.329									
8. Peers math	-.039	.012	-.087	-.231	-.313	-.316	.510								
9. Read targ. AT	-.235	-.010	.468	.282	.014	.097	.284	.171							
10. Read targ. IP	-.170	-.001	.130	-.526	-.209	.137	-.435	-.055	-.129						
11. Read targ. PD	.391	-.339	-.340	.111	.037	-.170	.001	-.116	-.400	-.397					
12. Read peers AT	-.130	-.052	.227	.185	-.086	-.419	.367	.297	.551	-.221	-.112				
13. Math targ. AT	-.315	-.095	.467	.183	.006	.092	.296	.014	.809	-.092	-.364	.290			
14. Math targ. IP	-.176	.105	.093	.049	.095	.360	-.052	-.128	.156	.340	-.234	-.184	.231		
15. Math targ. PD	.317	-.056	-.022	-.219	-.034	-.266	-.258	-.259	-.484	-.021	.388	-.053	-.492	-.515	
16. Math peer AT	-.042	-.185	.028	.200	-.175	-.441	.528	.402	.517	-.289	.084	.619	.454	-.203	-.275

NOTE: With 22 degress of freedom, a correlation of $\pm$ .404 is significant at .05 and a correlation of $\pm$ .515 is significant at .01.

Appendix

S. Forness
July, 1971

BEHAVIOR DEFINITIONS*

Attend (AT) - This category is used whenever a person indicates by his behavior that he is doing what is appropriate in the school situation, e.g., he is looking at the teacher when she is presenting material to the class; he is looking at visual aids as the teacher tells about them; he has his eyes focused on his book as he does the reading assignment; he writes answers to arithmetic problems. If subject's eyes are not observable, head orientation toward teacher, book, etc. will count as "attend." Appropriate behavior may include non-academic behavior if appropriate within the classroom context, e.g., waiting quietly for lesson to begin. When an appropriate but active response is observed the behavior is coded IP.

Interact Positive (IP) - Pupil initiates or attempts to initiate interaction with another person, e.g., pupil may go to teacher's desk during independent study or raise his hand and seek assistance in solving an arithmetic problem. This category can be checked when the pupil talks with the teacher about academic or non-academic material whether in private as in independent work situations or answers questions in other situations when not breaking classroom rules. Coded when the pupil is interacting with peer without violating classroom rules. Interaction includes verbal and non-verbal communication, e.g., talking, handing materials, working on project with peer, IP is coded when person indicates that he wants to make an academic contribution, e.g., teacher asks a question and student raises his hand. IP is also used whenever a person gives clear gestural, verbal, or physical approval to another individual and in this case is more than attention (AT), in that is must include some clear indication of positive interest or involvement, e.g., smiles, head nods, and phrases such as "Thank you," and "That's right."

Not Attend (NA) - This category is to be used when person is not attending to work in individual work situations or not attending to discussion when teacher is presenting material. This category is applicable to those situations in which the subject is working but on the wrong assignment. Care should be taken in using this category. Category is checked when child is not attending but, at the same time, is not engaging in potentially disruptive behaviors. Coded when person is looking around the room, looking out the window or staring into space when an academic activity is occurring. Also coded when person is playing alone or attempts to stimulate himself in such ways as swinging his feet, rubbing his nose, ears, forehead, tapping his fingers, scratching, etc., to such an extent that attention to other activities is precluded.

Improper Locale (IL) - Code this category when student is in classroom area that is inappropriate for academic activity that is occurring, e.g., student walks around the room while individual work is going on.

Teacher Disrupt (TD) - Use whenever content of conversation or interaction with teacher is non-academically oriented, e.g., "I had pizza for lunch," when the pupil asks inappropriate questions about academics, or when classroom rules do not allow interaction with the teacher. Do not code

*Revised from Cobb (1970)

when content is negative or hostile (TT-). TD is essentially impulsive behavior, e.g., calling out answer without raising hand or asking question not related to task.

Teacher Negative (TN) - Use whenever content of conversation or interaction is negative or hostile and clearly directed at teacher. To be coded whenever the person does not do what is requested in response to a specific command. Use this category whenever the subject gives verbal or gestural disapproval to teacher's behavior or characteristics. Use of this category is also appropriate to times when a subject physically attempts to attack teacher.

Peer Disrupt (PD) - Coded whenever subject interacts with or attempts to interact with peer about non-academic matters or when peer interaction violates classroom rules. Examples include behaviors such as touching a peer to get his attention, calling peer by name and talking to peer. Also coded when subject's behavior is negative or hostile to peer.

Noisy (NY) - This category is to be used when the person talks loudly, yells, bangs books, scrapes chairs, or makes any sounds that are likely to be actually or potentially disruptive to others, but when this behavior is not specifically directed to either teacher or peers. Use of this category is applicable when a person destroys or attempts to destroy some object, e.g., breaking a pencil in half, tearing a page from a book, carving name on desk, etc. Use this category only when TD, TN or PD are not applicable. Also includes play behavior which is noisy or disruptive.

RESPONSE DEFINITIONS

0 When no response to a behavior is observed.

Teacher+ - Used when teacher gives clear gestural, verbal or physical approval in immediate response to subject's behavior. Must include clear indication of positive interest or involvement, e.g., smiles, head nods, puts hand on back, phrases such as "That's a good boy," "Thank you," "That's right." As a response teacher may initiate interaction with subject, e.g., teacher may approach subject's desk during independent study, teacher calls student to her desk. Neutral teacher attention or response, e.g. looks without clear facial expression of disapproval shall also be coded as positive.

Teacher- - Used when teacher gives clear verbal or gestural disapproval to subject's behavior. Shaking the head or finger are also examples of disapproval. "I do not like that tone of voice," "You didn't pass in your homework on time," "Your work is sloppy" are examples of "disapproval." In verbal statements it is essential that the content of the statement explicitly states disapproval of the subject's behaviors or attributes, e.g., looks, clothes, attitudes, academic skills, etc.

Peer+ - Used when peer gives clear gestural, verbal or physical approval in immediate response to subject's behavior. Must include clear indication of positive interest or involvement. Also includes eye contact or looks

without clear facial expression of disapproval. [If teacher is paying attention, code it as teacher response.]

Peer- - Used when peer gives clear verbal or gestural disapproval to subject's behavior. "Stop it," "You're dumb!" "I don't like you" are examples of "disapproval." In verbal statements it is essential that the content of the statement explicitly state disapproval of the subject's behavior or attributes, e.g., looks, clothes, attitudes, etc.

S's name | School | Date | Observ. #

Subject | # in class | # peers group | % ethnic class | % ethnic group | Observer

	0	+ Teacher -	+ Peers -
TARGET			
ttend			
teract positive			
ot ttend			
nproper ocale			
EACHER isrupt			
egative			
EER isrupt			
oisy			
PEER			
ttend			
teract positive			
ot ttend			
nproper ocale			
EACHER isrupt			
egative			
EER isrupt			
oisy			

APPENDIX C

Classroom Observation of Potential Special Education Children.

Steven R. Forness, Ed.D.

Demonstration and Evaluation of an In-Service Program for Regular Classroom Teachers Designed to Increase Understanding and Acceptance of Exceptional Children.

Frank M. Hewett, Ph.D.
Frank D. Taylor, Ed.D.
Michael Soloway

Programs for EH and EMR Pupils: Review and Recommendations.

Barbara K. Keogh, Ph.D.
Laurence D. Becker
Maurine B. Kukic
Stevan J. Kukic

Field Independence-Dependence, Reflection-Impulsivity, and Problem-Solving Styles of Preschool Children.

Barbara K. Keogh, Ph.D.
Melinda F. Welles
Andrea L. Weiss

Teachers' Perceptions of Educationally High Risk Children.

Barbara K. Keogh, Ph.D.
Cheryl Anne Tchir

Correlates of Early Reading Success in Preschool Children.

Paul Klinger
W. Ragan Callaway, Ph.D.

Audiological Assessment of MH Rubella Children.

Shirley Oakes

Down's Syndrome Longitudinal Study

Jack Share, Ph.D.
Gary Landman

Differential Progress Rates Within an Educationally Handicapped Population.

Janet Switzer, Ph.D.
Jill De Picciotto
Wilma Pearl

Development of Assessment Procedures for Young Multihandicapped Children.

Annette Tessier, Ed.D.
Rose Marie Swallow, Ed.D.
Marie Poulsen, Ph.D.
Glenda Gay

Instructional Models for Teaching Disadvantaged Educable Mentally Retarded.

Alice V. Watkins